



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,155	12/15/2003	Ronald D. Hatfield	0015.02	3661

25712 7590 04/12/2011
USDA-ARS-OFFICE OF TECHNOLOGY TRANSFER
NATIONAL CTR FOR AGRICULTURAL UTILIZATION RESEARCH
1815 N. UNIVERSITY STREET
PEORIA, IL 61604

EXAMINER

PRYOR, ALTON NATHANIEL

ART UNIT	PAPER NUMBER
----------	--------------

1616

MAIL DATE	DELIVERY MODE
-----------	---------------

04/12/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/736,155
Filing Date: December 15, 2003
Appellant(s): HATFIELD ET AL.

Randall E. Deck
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/18/11 appealing from the Office action
mailed 8/18/10.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-5,7,8,10,11 and 14-17 are rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

2019731 KRUTZ 1979

Hatfield, R.A., "Characterization of red clover polyphenol oxidase" Plant Biology 2002 Program, Session 67, page 164.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5,7,8,10,11 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatfield (Characterization of red clover polyphenol oxidase, Plant Biology 2002 Program, Session 67, page 164) above in view of Krutz (GB 2019731; 11/7/79). Hatfield teaches a method for preserving forages (fodders) for animal production systems. Red clover silage retains over 80% of its protein (the amount of o-diphenol and polyphenol oxidase reduces the degree of proteolysis by at least 20%).

Reduced proteolysis in red clover is connected to the presence of soluble polyphenol oxidase (PPO) and soluble polyphenols such as caffeic chlorogenic acid and phasic acid. Hatfield teaches that red clover extracts containing PPO and o-diphenol.

Hatfield does not teach 1) the specific crops recited in claims 1 and 14, 2) the instant application rates of polyphenol oxidase and o-diphenol compound, 3) the contacting a polyphenol oxidase transformed crop to be ensiled with an o-diphenol compound and 4) the maceration of the crop to be ensiled. Based on Hatfield's teaching, it would have been obvious to treat crop of any type, including those crops recited in claims 1 and 14, with a red clover extract in order to prevent protein degradation in the plant. Although Hatfield does not explicitly teach polyphenol oxidase transformed crop, Hatfield teaches the application of polyphenol oxidase to crops to be ensiled. It is obvious that the application of polyphenol oxidase onto crops to be ensiled yields polyphenol oxidase transformed crops. With respect to maceration of forage, Krutz teaches an apparatus for macerating agriculture products to enhance drying (abstract) in a short time period. It would have been obvious to an artisan in the field to have modified the invention of Hatfield to include maceration. The artisan would have been motivated to do this to shorten the drying period of the forage which reduces the possibility of damage to the crop. See abstract, column 1. With respect to application rate of polyphenol oxidase and o-diphenol compound, it is well within the skill of the artisan to determine the most efficient application to ensure the production of healthy forage.

(10) Response to Argument

Appellants argue that Hatfield teaches that the endogenous PPO and o-diphenol present in red clover inhibits protein degradation. Hatfield does not teach or suggest treating crop material with PPO and o-diphenol as instantly claimed. In addition, Hatfield does not teach treating the specific crops recited in claims 1 and 14. Hatfield does not teach ensiled crop transformed with PPO being treated with diphenol as in claim 7.

Appellants conclude that an artisan in the field could not have reasonably predict that PPO/o-phenol system which is naturally present in red clover would be effective as treatment to inhibit proteolysis in other plants which lack the system. The Examiner argues that Hatfield starts out by explaining that there exists a protein degradation problem in silage production. Hatfield points out that red clover silage retains above 80% of its protein because of its PPO and o-diphenol content. Hatfield teaches that red clover extracts contain PPO and o-diphenol. The Examiner further argues that Hatfield at the very start identifies that ensiling is a popular process for preserving forages. The Examiner argues that from Hatfield's teaching it would have been obvious to treat crop of any type, including those crops recited in claims 1 and 14, with a red clover extract containing PPO and o-diphenol in order to prevent protein degradation in any crop type including the crop types recited in the instant claims 1,7 and 14. Even the PPO transformed ensilaged crop in claim 7 requires o-diphenol treatment. It is deduced that this treatment of transformed crop results in the crop being subjected to PPO and o-diphenol. Thus, Hatfiled's invention makes obvious that such treatment would reduce breakdown of protein in plants/forage.

Appellants argue that Krutz does not alleviate the deficiencies in Hatfield. Hatfield is directed to an apparatus for macerating forage such as hay. The Examiner argues that Krutz discloses an apparatus for macerating agrochemical products (forage) to enhance their drying. The drying step taught by Krutz is the primary reason for adding Krutz to Hatfield. It would have been obvious to an artisan in the field to have modified the invention of Hatfield to include maceration. The artisan would have been motivated to do this to shorten the drying period of the forage which reduces the possibility of damage to the crop. See abstract, column 1.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Alton N. Pryor/

Primary Examiner, Art Unit 1616

Conferees:

/Johann R. Richter/

Supervisory Patent Examiner, Art Unit 1616

./MICHAEL G. HARTLEY/

Supervisory Patent Examiner, Art Unit 1618

Application/Control Number: 10/736,155
Art Unit: 1616

Page 8